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Dated: 10/15/03

Signature:

(Deborah A. Harrell)

Docket No.: 20135-00315 US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
James W. Heater, et al.

Application No.: 09/619,701 ✓

Art Unit: 3729

Filed: July 19, 2000

Examiner: A. Tugbang

For: UNIVERSAL TOOL FOR UNIFORMLY
APPLYING A FORCE TO A PLURALITY OF
COMPONENTS ON A CIRCUIT BOARD

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AMENDMENT AFTER FINAL ACTION (37 C.F.R. SECTION 1.116)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated May 29, 2003 (Paper No. 10), favorable reconsideration of the application is requested.

Claims 1-4 are subject to restriction. The undersigned grants permission for the Examiner to cancel the non-elected claims upon the indication of allowable subject matter in the present application.

Withdrawal of the rejection of claims 11-15 under 35 U.S.C. § 112, is requested. The claim as written refers to a method for applying a bonding pressure to circuit board components bonded to a circuit board. Each recitation of the term components throughout the claim, including those on lines 3 and 8, refers to this process where components are bonded to a circuit board. Accordingly, there is only one set of components and the claim is believed to be clear on this point. In the event the Examiner considers that the language could be improved, he is urged

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to contact the undersigned at the telephone number below in order to avoid any such concerns over claim clarity.

Withdrawal of the rejection of claims 11-15 under 35 U.S.C. § 102(b) as being anticipated by Lape (U.S. Pat. No. 5,093,984), is requested. The Office Action alleges that:

Lape discloses the claimed method comprising...each of the pressure cylinders having a foot (pad portion 260) which extends under air pressure against the components; and supplying a source of pressurized air simultaneously to the pressure cylinders (shown in Fig. 18) whereby feet (pad portions 260) of the pressure cylinders extend simultaneously to apply a force against the components (see col. 11, lines 2+ and col. 14, lines 59+).

The foregoing characterization of Lape is in error. Pad portions 260 comprise a vacuum pad which is disclosed in col. 20 of the patent, lines 57-64, for capturing the circuit device resting free in the socket base 11. Thus, when the component is removed from the socket, the vacuum pad is brought into place to lift it free of the socket after the socket spring bias has been removed to free the component from the socket.

The function of the feed portions 260 disclosed in Lape is not, as set forth in the present application, to apply a force to a component so that the component can be cemented to another component. In reviewing Lape, there is no indication that the pad portions 260 apply any pressure to any component which will carry out the function of bonding an adhesive coated component to the circuit board.

Further, there is no indication that the pressure cylinders force the feet against the components for a duration of time sufficient to bond an adhesive coated component to the circuit board. Further, per claim 14, there is no suggestion that a timed pulse be used to control the fixed period of time in which the pressure is applied to the components.

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In view of the failure of the reference to disclose these features of independent claim 11, the sole independent claim in the application, and claim 14, favorable reconsideration is believed to be in order.

Withdrawal of the rejection of claims 11-15, under 35 U.S.C. § 103(a) as being unpatentable over Lape in view of Harada (U.S. Pat. No. 4,675,993), is requested. The Harada device is directed to a pick-and-place system, wherein a vacuum suction head locates an electronic component on a circuit board. As set forth in the prior art section of the reference, prior art chip component placement systems support a chip on a vacuum tip, and then move it into place while adhesive is being applied to the chip component. The mounting head stops when the chip component faces the printed circuit board and is mounted on it as designed.

The foregoing does not illustrate the ability to apply any pressure to a component, so that a bonding force is realized between the component and a surface to which the chip is mounted. The mounting operation is described more particularly in col. 4 of the reference, wherein the vacuum fastener 4 of the mounting part 3 descends so that the chip component 2 is attracted at its tip part (do to the vacuum) and is positioned over the placement location. The part is released by the vacuum fastener 4 when it is correctly located.

In reviewing the cited reference, it is not seen where there is any foot, descending from a pressure cylinder, which can apply pressure to a component being bonded to a surface. There is no indication that any feet are used to apply pressure to a component during bonding with another component on the surface of a circuit board.

Further, the rejected claim 11 and those dependent thereon call for supporting first, second and third pressure cylinders over components, where each of the pressure cylinders have a foot to simultaneously apply a force against all the components at once which is not shown in the cited references.

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In view of the foregoing, the Examiner is urged to reconsider the Final Rejection. In the event that any cooperation with the undersigned will assist in expediting prosecution of this subject matter, he is urged to contact the undersigned at the telephone number below.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 20135-00315-US from which the undersigned is authorized to draw.

Dated: 10/15/03

Respectfully submitted,

By 

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